

DETAILED ACTION
EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Adrian O'Donnell on 9/22/2009.

In claims:

Claim 37, line 7; at the beginning of the line, **"received data elements"** should be changed to **--the received data elements--**.

Claim 37, line 9; **"received data elements"** should be changed to **--the received data elements--**.

Claim 37, line 21; **"the particular data element"** should be changed to **--the particular filtered data element--**.

Claim 39, line 2; **"received data elements"** should be changed to **--the received data elements--**.

Claim 39, line 5; **"received data elements"** should be changed to **--the received data elements--**.

Claim 40, line 2; **"received data elements"** should be changed to **--the received data elements--**.

Claim 44, line 8; "**received data elements**" should be changed to **--the received data elements--**.

Claim 44, line 9; "**received data elements**" should be changed to **--the received data elements--**.

Claim 44, line 21; between "**of**" and "**transmitted**"; delete **--the--**.

Claim 46, line 2; "**received data elements**" should be changed to **--the received data elements--**.

Rewrite claim 48 as renumbered claim 47 as below

47. (previously presented) The system defined in claim 46, wherein the number of filtered data elements produced from each set of received data elements equals the number of transmit elements.

Claim 47, line 2; "**received data elements**" should be changed to **--the received data elements--**.

Rewrite claims 49-62 as renumbered claims 48-61 respectively as follows:

48. (previously presented) The system defined in claim 44, wherein the decision data set for a particular filtered data element includes a hard decision data set for the particular filtered data element.

49. (previously presented) The system defined in claim 44, further comprising a de-mapper connected to said multiplexer, said de-mapper being operative to produce a soft representation for each decision data set in the sequence of decision data sets.

50. (previously presented) The system defined in claim 49, wherein said de-mapper being operative to produce a soft representation for each decision data set in the sequence of decision data sets includes said de-mapper being operative to assign, to a particular data set, a numerical value corresponding to a sum of symbol values weighted by the contents of the particular data set.

51. (previously presented) The system defined in claim 50, wherein the symbol values correspond to numerical representations of respective points in a constellation.

52. (previously presented) The system defined in claim 49, further comprising a decoder connected to said de-mapper, said decoder being operative to transform the soft representations provided by said de-mapper into a stream information symbols.

53. (previously presented) The system defined in claim 52, wherein said decoder is an error correction decoder.

54. (previously presented) The system defined in claim 52, wherein said decoder is selected from the group consisting of a turbo decoder, a Reed-Solomon decoder, a convolutional decoder and a block decoder.

55. (previously presented) The system defined in claim 52, said decoder being further operative to generate reliability values on the information symbols, wherein said de-mapper being operative to produce a soft representation for each decision data set in the sequence of decision data sets includes said de-mapper being operative to produce said soft representation at least partly on the basis of the reliability values from said decoder.

56. (previously presented) The system defined in claim 44, wherein said decoder being operative to produce a set of information symbols for each decision data set in the sequence of decision data sets includes said decoder being operative to select one of a predetermined set of information symbols on the basis of the contents of the particular data set.

57. (previously presented) The system defined in claim 56, wherein each set of information symbols in the predetermined set of information symbols corresponds to a respective point in a constellation.

58. (previously presented) The system defined in claim 44, wherein said space matched filter is further operative to obtain the channel data elements from an external source.

59. (previously presented) The system defined in claim 44, wherein said space matched filter is further operative to compute the channel data elements based on measurements of the communications channel.

60. (previously presented) The system of claim 55, further comprising an interference reducing filter disposed between said space matched filter and said detector.

61. (previously presented) The system of claim 60, wherein the interference reducing filter comprises a minimum mean square error (MMSE) filter.

Allowable Subject Matter

2. Claims 37-61 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The closest prior art (Chan et al.) fails to disclose the decision data set for each filtered data element includes a soft decision data set comprising a set of values, each value in the set of values being indicative of a likelihood or reliability associated with transmission of a corresponding symbol by the transmit element associated with the

particular filtered data element and where the likelihood or reliability includes an a posteriori probability computed at least partly on the basis of the particular data element; the corresponding symbol; and a plurality of correlation data elements, each correlation data element being representative of a relationship between the channel data element associated with the transmit element associated with the particular filtered data element and a corresponding one of the channel data elements associated with a different one of the transmit elements, the distinct feature of claims renders the claims allowable over prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DHAVAL PATEL whose telephone number is (571)270-1818. The examiner can normally be reached on M-F 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dhaval Patel/
Examiner, Art Unit 2611
9/22/2009
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611